

REMARKS

Initially, Applicants would like to express their appreciation to the Examiner for the detailed Official Action provided.

Applicants note that an Information Disclosure Statement was filed in the present application on September 8, 2004. Applicants respectfully request that the Examiner consider the material provided in the Information Disclosure Statement, and acknowledge such consideration by returning an initialed copy of the Form PTO-1449 provided therewith.

Claims 1, 4-6, 8 and 9 are currently pending. Applicants respectfully request reconsideration of the outstanding rejections, and allowance of all the claims pending in the present application.

On page 2 of the Official Action, claims 8 and 9 were rejected under 35 U.S.C. § 102(b) as being anticipated by MIURA et al. (U.S. Patent No. 5,850,851). The Examiner particularly points to valve plate 40C of the embodiment shown in Figs. 11 and 12 of MIURA et al.

Applicants respectfully traverse the rejection of claims 8 and 9 under 35 U.S.C. § 102(b).

Claim 8 recites, inter alia, "check valve shaped in helical plate spring shape to prevent a flow of the fluid when the fluid flows in one direction by maintaining a pressured state as the parts of the check valve overlaps".

Applicants submit that MIURA et al. lacks any disclosure of a check valve having parts which overlap, much less a check valve which prevents fluid flow in one direction by maintaining a pressured state as parts of the check valve overlap.

Contrary to the Examiner's stated position, Applicants submit that valve plate 40C of the embodiment shown in Figs. 11 and 12 of MIURA et al. does not include any parts which *overlap*. As explained at column 7, lines 45-53, the valve plate 40C includes an arm element 42C and a leaf element 41C. As is clearly shown in Fig. 11 of MIURA et al., the valve plate 40C has spaced openings separating the different parts of the valves (i.e., arm element 42C and leaf element 41C), such that the different parts do not overlap. Compare, for example, Figures 4A and 5B of the present application, which depict a spring valve in a closed position having overlapping parts. Applicants note that such overlapping is not necessary in the system of MIURA et al. since the central leaf element 41C alone closes the valve (note Figures 2, 3 and 6, and column 7, lines 45-67).

Applicants further note that the Examiner's apparent confusion regarding the disclosure of MIURA et al. may be a result of the different positions of element depicted in Fig. 12. In this regard, Applicants note that the *solid lines* (with cross-hatching) in Fig.

12 depict the closed position of valve plate 40C, in which arm element 42C and leaf element 41C are located in the same plane. The *dotted lines* in Fig. 12 depict the opened position of valve plate 40C, in which leaf element 41C is located in the a plane above arm element 42C (but not in an *overlapping* position).

Fig. 12 also demonstrates an additional distinction between the claimed check valve and the valve plate 40C of MIURA et al. In the system of MIURA et al., the leaf element 41C is located in a plane above (but not overlapping) the arm element 42C when the valve plate 40C is in an "opened" position. In contrast, the claimed check valve prevents fluid flow (i.e., is in a "closed" position) by maintaining a pressured state as parts of the check valve overlap. In other words, even though the Examiner attempts to characterize the positions of elements shown by *dotted lines* in Fig. 12 as overlapping, Applicants note that such positions depict the "opened" condition of the valve plate 40C, rather than the "closed" condition.

Accordingly, Applicants submit that MIURA et al. lacks any disclosure of a check valve in the form of a helical plate spring having parts which overlap, much less a check valve which prevents fluid flow in one direction by maintaining a pressured state as parts of the check valve overlap.

Applicants also submit that dependent claim 9, which is at least patentable due to its dependency from claim 1, for the reasons noted above, recites additional features of

the invention and is also separately patentable over the prior art of record. For example, MIURA et al. lacks any disclosure of a check valve in a circular helix shape, triangular helix shape or rectangular helix shape, as recited in claim 9.

Applicants respectfully submit that the rejection of claims 8 and 9 under 35 U.S.C. § 102(b) is improper at least for each and certainly for all of the above-noted reasons. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection, and an early indication of the allowance of these claims.

On pages 3-5 of the Official Action, claims 1, 4-6, 8 and 9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Admitted Prior Art system shown in Figures 1, 2A-2D, 3A and 3B (hereinafter "the APA") in view of MIURA et al. (U.S. Patent No. 5,850,851). The Examiner acknowledges that the APA lacks a helical plate spring check valve. However, the Examiner takes the position that MIURA et al. discloses such a helical plate spring check valve 40C, and that it would have been obvious to one of ordinary skill in the art to provide such a helical plate spring check valve in the system of the APA in order to provide a positive checked position (closed position) and a low-restriction flow in the open position.

Applicants respectfully traverse the rejection of claims 1, 4-6, 8 and 9 under 35 U.S.C. § 103(a).

Claim 1 recites, inter alia, "check valve shaped in a helical plate spring structure coupled with the inlet hole and discharging hole of the valve plate, wherein the parts of the check valve overlap".

Claim 8 recites, inter alia, "check valve shaped in helical plate spring shape to prevent a flow of the fluid when the fluid flows in one direction by maintaining a pressured state as the parts of the check valve overlaps".

For the reasons explained in detail above, Applicants submit that MIURA et al. lacks any disclosure of a check valve in the form of a *helical plate spring having parts which overlap*. In regard to claims 8 and 9, Applicants further submit that MIURA et al. lacks any disclosure of a check valve which prevents fluid flow in one direction by maintaining a pressured state as parts of the check valve overlap.

As is clearly shown in Fig. 11 of MIURA et al., the valve plate 40C has spaced openings separating the different parts of the valve (i.e., arm element 42C and leaf element 41C), such that the different parts do not overlap. Compare, for example, Figures 4A and 5B of the present application, which depict a spring valve in a closed position having overlapping parts. Applicants note that such overlapping is not necessary in the system of MIURA et al. since the central leaf element 41C (Figure 11) alone closes the valve (note Figures 2, 3 and 6, and column 7, lines 45-67). (As noted above, the Examiner's apparent confusion regarding the disclosure of MIURA et al. may be a result

of the different positions of element depicted in Fig. 12.) Accordingly, Applicants submit that MIURA et al. can not be viewed as teaching the provision of a check valve in the form of a *helical plate spring having parts which overlap*.

Applicants further submit that the fuel tank system for automobiles disclosed in MIURA et al. is not analogous to the piston reciprocating compressor of the APA. Accordingly, Applicants submit that one of ordinary skill in the art of piston reciprocating compressors would not have looked to such a fuel tank system for automobiles for teachings of a valve.

Accordingly, Applicants submit that the modification suggested by the Examiner is the result of impermissible hindsight reasoning based upon the disclosure of the present application, rather than the teachings of the applied prior art. Applicants submit that this is particularly true in this case given the complete lack of any disclosure of a *helical plate spring check valve having parts which overlap* in MIURA et al.

Applicants also submit that dependent claims 4, 5, 6 and 9 which are at least patentable due to their respective dependencies from claims 1 and 8, for the reasons noted above, recite additional features of the invention and are also separately patentable over the prior art of record. For example, MIURA et al. lacks any disclosure of a check valve in a stair shape having a narrower width as distance from the hole increases (claim 4), or a circular helix shape, triangular helix shape or rectangular helix shape check valve (claim

P21833.A06

9).

Applicants respectfully submit that the rejection of claims 1, 4-6, 8 and 9 under 35 U.S.C. § 103(a) is improper at least for each and certainly for all of the above-noted reasons. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection, and an early indication of the allowance of these claims.

SUMMARY AND CONCLUSION

Consideration of the above-noted remarks, reconsideration of the outstanding Official Action, and allowance of the present application and all of the claims therein are respectfully requested and now believed to be appropriate.

Applicants have made a sincere effort to place the present application in condition for allowance and believe that they have now done so.

Should there be any questions or comments, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
LEE et al.

A handwritten signature in black ink, appearing to read "B. Bernstein", followed by the text "Reg. No. 48,214" written in a cursive style.

Bruce H. Bernstein
Reg. No. 29,027

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